

### ■ Mobile Celeron Gets Faster, Cooler

Beefing up its mobile offerings, Intel has added a new speed grade to the top of its Mobile Celeron line, along with new low-power versions. The 333-MHz Mobile Celeron adds a third speed grade to the new product line, using the same Dixon chip (see MPR 1/25/99, p. 20) as the others.

The new speed grade improves Intel's competitiveness against AMD's Mobile K6-2 (see MPR 3/29/99, p. 4), which also tops out at 333 MHz in the standard notebook thermal envelope. At \$299, the Mobile K6-2/333 was positioned against Intel's more expensive Mobile Pentium II-333. The new Mobile Celeron carries a list price of just \$159; to compete, AMD must cut the K6-2's price dramatically.

Intel also introduced two new processors for mini-notebook systems, some of which continue to use the older Mobile Pentium/MMX (Tillamook), due to its lower power dissipation. The Mobile Pentium II-266LV and Mobile Celeron-266LV operate at a supply voltage of 1.5 V, slightly less than the 1.6 V used by the standard parts. This change reduces their power dissipation by 12%, to 5.8 W (TDP), less than that of a Tillamook-300. Considering that Tillamook's power does not include the L2 cache, the LV parts are quite attractive substitutes and should move most of the mini-notebook market to Dixon in short order.

The LV Celeron carries a list price of \$127, a \$42 premium over the price of the standard Mobile Celeron-266 but still quite affordable. At \$219, the LV Pentium II is only \$32 more than the standard version.

The introduction of the faster Mobile Celeron comes along with a general quarterly reduction in Intel's pricing. The Mobile Celeron-300, formerly \$187, dropped by 43% to fit below the Mobile Celeron-333. Similarly, the Mobile Pentium II-300 price was slashed by 42%, to \$187, just a modest premium over the new Mobile Celeron. Other mobile prices fell by 20–32% (see MPR 4/19/99, p. 27).

Desktop prices fell at a more leisurely rate, as Intel had just trimmed them in February (see MPR 2/15/99, p. 4). The company cut Celeron prices by 15–23%, except for the 333-MHz version, which fell 8%. At \$67, the Celeron-333 is now the low end of the line. At the high end, Pentium III prices fell 8–17% just a month after the part's official introduction, with a Pentium III-450 now at \$411. Intel plans to displace Pentium II from its product line by the end of the year, so expect the Pentium III-450 price to plummet to about \$200 over the next six months. —L.G.

### ■ K6-2 Surges to 475 MHz

With further adjustments to its manufacturing process, AMD has pushed the top speed of the K6-2 from 400 MHz all the way to 475 MHz. The new part uses a 95-MHz bus; so far, the company cannot get adequate yield at the more natural frequency of 500 MHz. PCs with a 100-MHz Socket 7 bus can

use a new 450-MHz K6-2. IBM has already announced an Aptiva system using the K6-2/475.

At \$213 and \$158, respectively, the 475- and 450-MHz K6-2 processors are positioned between AMD's slower K6-2 parts and its high-end K6 III chips (see MPR 3/8/99, p. 22). Until Intel deploys a 466-MHz Celeron, they are also above Intel's Celeron line, matching up against the Pentium II-400, which is similar in both price and performance.

The nearly 20% increase in clock speed comes from adjustments to AMD's nominal 0.25-micron process to reduce channel length. The company has had problems in the past maintaining yield during such transitions; how many parts it can deliver at these higher speeds remains to be seen. Further increases in clock speed are unlikely until AMD deploys its 0.18-micron process late this year —L.G.

### ■ Rise Ascending to Socket 370

Rise Technology has not yet announced any speed grades for its mP6 beyond the initial 200-MHz PR266 offering (see MPR 11/16/98, p. 1), but the company demonstrated a PR300 mP6 and a 200-MHz mP6 II at last month's Cebit and disclosed a bit more about its product plans. Most notably, the company says it will introduce a Socket 370 version of the mP6 II, which has a 256K on-chip L2 cache, allowing it to plug into Celeron systems. Due sometime in the second half of this year, the chip—as well as its Socket 7 version—will be built in a 0.18-micron process by a still-unidentified foundry (rumored to be IBM).

Cyrix also is rumored to be planning a Socket 370 processor for the fall, combining its Cayenne core with a 256K on-chip L2 cache. IDT continues to use Socket 7 for its WinChip line, but a Socket 370 chip is rumored to be in the works for 2000. The emergence of multiple low-cost processors with the Socket 370 interface could put Socket 7 systems into a steep decline, with AMD's K6-2 and K6 III becoming the primary remaining chips to use that interface.

Rise also released a performance brief ([www.rise.com/products\\_frame.html](http://www.rise.com/products_frame.html)) that shows the mP6-266's SYSmark 98 performance to be 2.5% slower than Cyrix's M II-266 and 16% slower than AMD's K6-2/266. The Rise chip was 36% faster than the M II and 8% faster than the K6-2 on the Norton 3D Graphics benchmark. This testing was done with DirectX 5, however, rather than DirectX 6, so the K6-2's 3DNow extensions were not used; with 3DNow enhancements, the AMD chip would surely be faster.

With the bottom of Intel's line at 333 MHz and rising, the mP6 II's sales potential depends on a sizable boost in clock speed, something the 0.18-micron process should enable. Keeping costs competitive, given the chip's relatively large die size, presents another challenge. So far, Rise has announced no design wins of note, although Kiwi Computer has shown a notebook based on the chip. —M.S. □